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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,165	09/08/2003	Sungkwon Chris Hong	M4065.0916/P916	1326
24998	7590	10/14/2005	EXAMINER	
DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP			SOHN, SEUNG C	
2101 L Street, NW			ART UNIT	
Washington, DC 20037			PAPER NUMBER	
			2878	

DATE MAILED: 10/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/656,165

Applicant(s)

HONG ET AL.

Examiner

Seung C. Sohn

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 4-28 and 31-42 is/are rejected.
- 7) ☒ Claim(s) 2, 3, 29 and 30 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 604.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Oath/Declaration

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because the citizenship of the first inventor, Sungkwon Hong, is Democratic People's Republic of Korea (North Korea). Examiner wonders if this is a misunderstanding for Republic of Korea (South Korea). Clarification is required and a new oath or declaration is required if the citizenship is actually not true.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. ***Claims 1, 4-12, 16-28, 32-34 and 38-42 are rejected under 35 U.S.C. 102(b) as being anticipated by Rhodes (Patent No. US 6,204,524).***

Regarding claims 1, 8, 20, 24 and 28, Rhodes shows in Figs. 5 and 24 a processing system (400) comprising: a processor (444); and an imager (442) coupled to said processor, said imager comprising a pixel sensor cell (114) comprising: a substrate having a first surface level (116); a photoconversion device having a first doped region (110) of a first conductivity type and a second doped region (120) of a second conductivity type located within said substrate; a dielectric substance layer

(100) formed over the first surface level of said substrate thereby forming a second surface level; a polysilicon layer (102) formed over said second surface level; a contact (150) connected to said polysilicon layer; a transistor (128) located adjacent to said photoconversion device; and signal processing circuitry formed in said substrate and electrically connected to the array for receiving and processing signals representing an image output by the array and for providing output data representing said image (Col. 7, line 21 – Col. 8, line 26).

Regarding claims 4, 21 and 25, Rhodes shows in Fig. 5 that said gate comprises a dielectric substance layer (158) and a polysilicon layer (160).

Regarding claims 5, 16-17 and 39-40, Rhodes shows in Fig. 5 that said transistor includes a transfer transistor (128).

Regarding claim 6, Rhodes discloses that said photoconversion device includes a photodiode (see claim 2).

Regarding claims 7 and 38, Rhodes shows in Fig. 5 that said charge collection region includes a floating diffusion region (130).

9. The pixel sensor cell according to claim 8 wherein said dielectric substance layer has a thickness in the range of about 50-150 .ANG..

Regarding claims 10-12 and 32-34, Rhodes discloses that said dielectric substance layer (100) includes silicon dioxide, silicon nitride (Si.sub.3N.sub.4) or silicon oxynitride (SiON) (Col. 8, line 41).

Regarding claims 18-19, 22-23, 26-27 and 41-42, Rhodes discloses that said pixel sensor cell is part of a CMOS imager or a charge coupled device (CCD) imager (Col. 1, lines 13-67).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. ***Claims 13-15, 31 and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rhodes (Patent No. US 6,204,524).***

Regarding Claims 13-15, 31 and 35-37, Rhodes discloses the claimed invention as above, but is silent that said polysilicon layer has a thickness in the range of about 500-1500 .ANG, includes silicon germanium in a ratio of about Si.sub.60Ge.sub.40 and said dielectric substance layer has a thickness in the range of about 50-150 .ANG. However, it has been held that where general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Therefore, it would have been obvious to a person having ordinary skill in the art to provide the specific ranges of polysilicon and dielectric layer thicknesses for the purpose of obtaining maximum signal to noise ratio.

Allowable Subject Matter

6. **Claims 2-3 and 29-30** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

Claims 2-3 and 29-30 are allowable because the prior art fails to disclose or make obvious, either singly or in combination, a pixel sensor cell comprising, in addition to the other recited features of the claim, "said pixel sensor cell is arranged such that said photoconversion device has a reduced pinning voltage (V_{sub} .PIN) when a negative bias is applied to said contact".

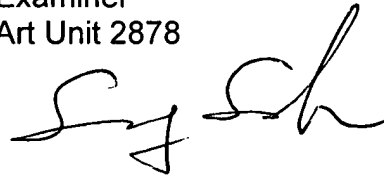
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seung C. Sohn whose telephone number is (571) 272-2446. The examiner can normally be reached on Monday through Friday from 8:30 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Seung C. Sohn
Examiner
Art Unit 2878

A handwritten signature in black ink, appearing to read 'S. C. Sohn', written in a cursive style.